

CHERNAYA, L. A.

KOVTUNOICH, G.P.; CHERNAYA, L.A.; PETRUS', V.S.

Pathogenesis of tetanus. Zhur.mikrobiol.epid.i immun. no.5:32-34  
My '55. (MIRA 8:7)

1. Iz kliniki obshchey khirurgii L'vovskogo meditsinskogo instituta  
i laboratorii ranevykh infektsii L'vovskogo instituta epidemiologii,  
mikrobiologii i gigiyeny.  
(TETANUS, etiology and pathogenesis)

USSR / Microbiology. Microorganisms Pathogenic to Humans and Animals.

F-5

Abs Jour : Ref Zhur - Biol., No 20, 1958, No. 90944

Author : Chernaya, L. A.

Inst : ~~Not given~~

Title : Study of Experimental Tetanus Induced by Injection of Tetanus Toxin, Spores of Tetanus Bacilli, and Soil

Orig Pub : V sb.: Anaerobnyye infektsii. Kiyev, Gosmedizdat, USSR, 1957, 99-103

Abstract : Mice were injected subcutaneously with 0.5 - 1 ml suspension of soil in a physiological solution heated at 80 degrees for 20 min., or with spores of tetanus bacilli (TBS) in a 0.75% solution of  $\text{CaCl}_2$ . The animals were observed for 10 days. An irregularity was noted in soil inoculated with TBS, and a different course of infection was also observed in mice inoculated with soil, TBS, or dry

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USSR / Microbiology. Microorganisms Pathogenic to Humans and  
Animals:

F-5

Abs Jour : Ref Zhur = Biol., No 20, 1958, No. 90944

tetanus toxin (control). When the mice were injected with toxin, the first symptoms of tetanus appeared after 18 hours; with injection of TBS - after twenty-four hours, and with inoculation of soil - after 2 - 3 days. Progression of intoxication signs advanced more quickly with injection of TBS and soil, and more slowly with injection of the toxin. 46.9% of the mice died from tetanus during the first 3 days with injection of the toxin, 96.6% with injection of the soil, and 89.5% with injection of the spores. The authors consider that the difference in the appearance, development, dynamics, and outcome of tetanus induced by the injection of toxin, soil, or TBS is related to different mechanisms of the infection; intoxication in the first case and toxic infection in the latter. -- G. F.

Card 2/2

*CHERNAYA, L. A.*

USSR / Microbiology. Microbes Pathogenic for Man and Animals. Bacteria. Anaerobic Bacilli. F

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 24084

Author : Chernaya, L. A.; Sakhnovskaya, G. K.  
Inst : L'vov Scientific Research Institute of  
Epidemiology, Microbiology and Hygiene  
Title : The Problem of Tetanus During Peace Time

Orig Pub : Sb. nauchn. rabot. L'vovsk. n.-i. in-t  
epidemiol., mikrobiol. i gigiyeny, 1957,  
vyp 2, 157-165

Abstract : On the basis of the material from four  
Western oblasts of the Ukrainian SSR for the  
last few years, it was shown that the mortality  
due to tetanus exceeds the mortality due to  
dysentery, scarlet fever, measles, and  
diphtheria; the lethality in tetanus is equal

Card 1/2

USSR / Microbiology. Microbes Pathogenic for Man and F  
Animals. Bacteria. Anaerobic Bacilli.

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 24084

to 35.8%. In 84.9% of cases, a rural population was stricken, while 86.3% of the disease rate occurred in April-October, i.e., during the period of agricultural work. In the majority of cases the tetanus disease affected the kolkhozniks or the children (agricultural or household traumatism). A parallelism was noted between the tetanus disease rate of the population and the infection of the soil with the spores of *Bacillus tetani*. The authors recommend compulsory active immunization of the population in epidemic foci. --  
V. V. Vlodavets

Card 2/2

**CHERNAYA, L.A.**

Resolution of the conference on problems in the immunity and  
epidemiology of tetanus and diphtheria. Zhur.mikrobiol.epid. i  
immun. 28 no.1:155-157 Ja '57. (MLRA 10:3)  
(TETANUS) (DIPHTHERIA)

USSR / General Problems of Pathology. The Pathophysiology of the Infectious Process.

U

Abs Jour: Ref Zhur-Biol., No 22, 1958, 102485.

Author : Chernaya, L. A.

Inst : Not given.

Title : The Significance of Organism Reactivity and Additional Stimuli in Gas Gangrene and Outbreak of Silent Anaerobic Infection.

Orig Pub: V sb.: osnovy immuniteta, M., 1956, 223-234.

Abstract: In intramuscular introduction to mice of a suspension of *B. perfringens* and *B. sporogenes*, the mortality is 2.1 to 4.3% with a background of anemia, necrosis and crushing of tissues it is 29.4 to 75.4%. In rabbits, the infiltrates encysted by the 10-14th day after infection. After 2-3 months,

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USSR/Human and Animal Pathogens.

F

Abs Jour : Ref Zhur Biol., No 1, 1959, 775

Author : Chernaya, L.A., Petrus, V.C.

Inst : -

Title : Impossibility of Using the Mucin Clot Reaction for  
Early Diagnosis in Wound Infections

Orig Pub : V sb.: Anaerobnye infektsii. Kiev, Gosmedizdat USSR, 1957 ,  
137-139

Abstract : Laboratory and clinical investigations indicate that despite the presence of hyaluronidase activity in the microbial flora of infiltrated wounds (*Bacillus perfringens*, *Staph. aureus* and *Staph. albus*) in most cases hyaluronidase of microbial origin cannot be determined by reactions of the mucin clot and measurement of the viscosity of the wound exudate (a positive hyaluronidase reaction was found in only 6 of 50 cases). This is explained by the development in the organism's tissues of antivasins which

Card 1/2

. USSR/Human and Animal Pathogens.

F

Abs Jour : Ref Zhur Biol., No 1, 1959, 775

inhibit the microbial hyaluronidase. In the author's opinion the mucin clot reaction cannot be used for the early and rapid diagnosis of gas gangrene and wound infections. -- A.N. Shivaeva

Card 2/2

- 23 -

17(2)

SOV/16-59-6-34/46

AUTHORS: Chernaya, L.A., Shablovskaya, Ye.A., Kovtunovich, L.G. and Kaplina, Z.I.

TITLE: The Variation of Clostridium Perfringens. J.I. The Variation of Clostridium perfringens During Prolonged Existence in the Body With Experimental Dormant Gas Gangrene Infection. Author's Summary.

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1959, Nr 6, pp 127-128 (USSR)

ABSTRACT: A study was made of the variation of Clostridium perfringens in the conditions of a dormant gas gangrene infection. The foci of the dormant infection were created in guinea pigs and white mice by administering the corresponding microbes in lanoline. At regular intervals bacteria were isolated and tested for variation. The tests revealed three types of bacterium: 1) typical bacteria in the S form; 2) bacteria with changed cultural, morphological and tinctorial properties and 3) bacteria with very pronounced changes in their properties (in extreme cases their virulency and toxigenicity could not be restored even by repeated passages in animals). In the first month 75% of the strains isolated were of Type I. In the 4-6th month 31.8% were of type III and only 8.9 - 10.9% of Type I. In the 7-12th month 47.8% of the strains were of Type III. Poly-

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SOV/16-59-6-34/46

The Variation of Clostridium Perfringens. II. The Variation of Clostridium Perfringens During Prolonged Existence in the Body With Experimental Dormant Gas Gangrene Infection. Author's Summary.

infection in conjunction with Staphylococci or Salmonella paratyphi C and D led to more pronounced and frequent variation than mono-infection with Clostridium perfringens alone (72.6% compared to 42.2%). No changes in the antigen structure of the varied strains was noted, although their agglutination reaction titer was one step higher than that of the original Clostridium perfringens serum. The tests showed, then, that prolonged existence of Clostridium perfringens in the body during dormant gas gangrene infection led to a weakening of all the bacterium's properties, but particularly its virulence and toxigenicity. In most cases, however, pathogenicity could be restored by passage through animals.

ASSOCIATION: L'vovskiy institut epidemiologii, mikrobiologii i gigieny (L'vov Institute of Epidemiology, Microbiology and Hygiene)

SUBMITTED: February 10, 1958

Card 2/2

CHERNAYA, L.A., prof.; KOVTUNOVICH, L.G.; SAKHNOVSKAYA, G.K.

Large-scale immunization against tetanus. Sov. med. 25 no.9:94-97  
S '61. (MIRA 15:1)

1. Iz L'vovskogo instituta epidemiologii, mikrobiologii i gigiyeny.  
(UKRAINE...TETANUS)

CHERNAYA, L.A.; KOVTUNOVICH, L.G.

Active-passive prevention of tetanus. Significance of the antigenic properties of tetanus anatoxin. Zhur. mikrobiol., epid. i immun. 33 no.2:20-25 F '62. (MIRA 15:3)

1. Iz L'vovskogo instituta epidemiologii, mikrobiologii i gigiyeny.

(TETANUS)

(TETANUS ANTITOXIN)

IVASHKEVICH, G.A. (L'vov); CHERNAYA, L.A. (L'vov); KOTLYARENKO, B.N. (L'vov);  
KONONENKO, T.S. (L'vov)

Intracarotid administration of antitetanus serum in the treatment  
of tetanus. Klin.med. 40 no.10:73-77 O '62. (MIRA 15:12)

1. Iz kliniki infektsionnykh bolezney (zav. -- dotsent B.N.  
Kotlyarenko) L'vovskogo meditsinskogo instituta i laboratorii  
ranevykh infektsiy (zav. -- prof. L.A.Chernaya).  
(TETANUS) (TETANUS ANTITOXIN)

CHERNAYA, L.A., prof.; IVASHKEVICH, G.A., dotsent

Tetanus in the newborn. Sov.med. 26 no.11:71-75 N'62  
(MIRA 17:3)

1. Iz L'vovskogo instituta perelivaniya krovi ( dir. - dotsent  
D.G. Petrov) i L'vovskogo meditsinskogo instituta ( dir. - prof.  
L.N.Kuz'menko).

L 29790-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/HW/GD

ACC NR: AT6016345 (N) SOURCE CODE: UR/0000/65/000/000/0075/0079

AUTHORS: Larikov, L. N.; Yatsenko, T. K.; Chernaya, L. F.; Kumok, L. M. 37

ORG: Institute for Metal Physics, AN UkrSSR (Institut metallofiziki AN UkrSSR) 8+1

TITLE: Investigation of the diffusion of nickel in the system  $\text{Ni}_{\frac{1}{6}\frac{2}{7}}\text{Al} \rightarrow \text{Ni}_{\frac{3}{27}}\text{Ti}$  37

SOURCE: AN UkrSSR. Podvizhnost' atomov v kristallicheskoj reshetke (Mobility of atoms in crystal lattice). Kiev, Izd-vo Naukova dumka, 1965, 75-79

TOPIC TAGS: nickel alloy, aluminum alloy, titanium alloy, metal diffusion, *nickel*

ABSTRACT: The rate of diffusion of  $\text{Ni}^{63}$  in the system  $\gamma\text{-Ni}_3\text{Al} \rightarrow \eta\text{-Ni}_3\text{Ti}$  was studied. The alloys were prepared in an induction furnace. The composition of the alloys, determined by means of chemical and x-ray analysis, was found to be in good agreement with the results of A. Taylor and R. W. Floyd (J. Inst. Metals, 1952, 80, 577). The diffusion coefficient was determined with the formula of P. L. Gruzin (DAN SSSR, 1952, 66, 289),

$$D = \frac{1}{4 \lg \alpha},$$

where D is the diffusion coefficient,  $\lg \alpha$  is the slope of the curve  $\log N$  vs  $x^2$  of the residual activity N at a depth x. The experimental results are presented in graphs and tables (see Fig. 1). The degree of order in  $\gamma\text{-Ni}_3\text{Al}$  was also determined

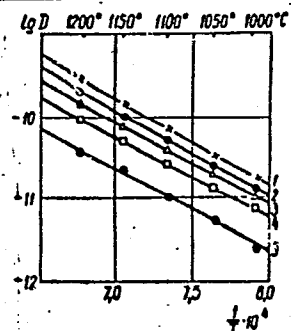
Card 1/2

L 29790-66

ACC NR: AT6016345

Fig. 1. Temperature dependence of the alloy diffusion coefficients.

1 -  $\text{Ni}_3\text{Ti}$ ; 2 -  $\text{Ni}_3\text{Al}$ ; 3 - 5% Ti;  
4 - 15% Ti; 5 - 10% Ti.



by x-ray methods. From a comparison of diffusion and x-ray data for the system  $\gamma$ - $\text{Ni}_3\text{Al}$ , it is concluded that there exists a qualitative correspondence between the mobility and long-range order of the atoms of the principal metal. Orig. art. has: 1 table, 2 figures, and 1 equation.

SUB CODE: 11/ SUBM DATE: 04 Jan 65/ ORIG REF: 008/ OTH REF: 006

Card 2/2 *fv*

L 34107-65 EWT(m)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(c) Pad/Pu-4 IJP(c) JD/HW/JG  
 ACCESSION NR: AT5005122 S/2601/64/000/019/0183/0186

AUTHOR: Yatsenko, T. K.; Chernaya, L. F.

TITLE: Nickel diffusion in niobium

SOURCE: AN UkrSSR. Institut metallofiziki. Sbornik nauchnykh trudov, no. 19, 1964. Voprosy fiziki metallov i metallovedeniya (Problems in the physics of metals and physical metallurgy), 183-186

TOPIC TAGS: nickel diffusion, grain size, fragmentary structure, dislocation structure, niobium, body centered

ABSTRACT: The authors discuss the  
 temperature range. The

where  $N_n$  is the activity of the specimen after the removal of an  $x_n$  thick layer and  $t$  is the time of diffusion annealing. A series of tests at higher temperatures are recommended inasmuch as diffusion processes at low temperatures are affected by grain size as well as by the

Card 1/3

L 34107-65

ACCESSION NR: AT5005122

the basis of their results, the author: ... the division of ...  
metal ... as surge  
art. has ... table and

ASSOCIATION: Institut metal ofiz ...

Ukr. SSR)

SUBMITTED: 26Jun63

ENCL: 01 SUB CODE: MM

NO REF SOV: 005

OTHER: 006

Card 2/3

ACC NR: AT6034434

(A)

SOURCE CODE: UR/0000/66/000/000/0028/0030

AUTHOR: Larikov, L. N.; Chernaya, L. F.; Yatsenko, T. K.

ORG: none

TITLE: Autodiffusion in mono- and polycrystalline tungsten

SOURCE: AN SSSR. Institut metallurgii. Svoystva i primeneniye zharoprochnykh spлавov (Properties and application of heat resistant alloys). Moscow, Izd-vo Nauka, 1966, 28-30

TOPIC TAGS: metal diffusion, tungsten, electron radiation

ABSTRACT: The article reports an investigation of the volumetric and boundary autodiffusion of tungsten, using the radioactive isotope  $W^{185}$ . The study of volumetric autodiffusion was carried out on monocrystalline tungsten obtained by the electron radiation method. Diffusion annealing was done in the temperature interval 2430-2000°C in a Type TVV-4 furnace in an argon atmosphere. The diffusion coefficients were measured by the layer method, by measurement of the surface activity of the sample. A figure shows the temperature dependence of log D. This dependence can be described by the equation

$$D_{tot} = 25.12 \exp(151,000/RT)$$

The experimental data are also shown in detail in tabular form. Diffusion annealing

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ACC NR: AT6034434

was carried out in a Type TVV-2m furnace in an argon atmosphere in the temperature interval from 1730-1900°C. The authors' data is compared in a satisfactory manner with data from previously published work. Orig. art. has: 1 figure and 1 table.

SUB CODE: 11/ SUEM DATE: 10Jun66/ ORIG REF: 004/ OTH REF: 003

Card 2/2

CHERNAYA, L.S.; ANUFRIYEVA, R.V.

Trilonometric determination of zinc and lead in electrolytic  
baths. Zav. lab. no. 11: 1297-1298 '59. (MIRA 13:4)  
(Zinc—Analysis) (Lead—Analysis)

LUKIN, A.M.; CHERNAYA, L.S.; PETROVA, G.S.; SOSNINA, A.I.

Extraction determination of lead by means of arsazene.

Zav.lab. 28 no.4:398-401 '62.

(MIRA 15:5)

(Lead Analysis)

ZEMLYANSKIY, N.I.; CHERNAYA, N.M.; TURKEVICH, V.V.

Esters of selenium thiophosphoric acid. Salts and neutral esters  
of O,O-diphenylselenium thiophosphoric acid. Dokl. AN SSSR 163  
no.6:1397-1399 Ag '65. (MIRA 18:8)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko. Submitted  
February 3, 1965.



62229-65

ACCESSION NR: AP5021889

2

Card

MC  
2/2

L 10368-67 ENP(j)/EWI(m) RM  
ACC NR: AP7003116

SOURCE CODE: UR/0079/66/036/007/1346/1347

AUTHOR: Chernaya, N. M.; Zemlyanskiy, N. I.

ORG: L'vov State University (L'vovskiy gosudarstvennyy universitet)

TITLE: Saponification of the propyl ester of O,O-diethylselenothiophosphoric

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1346-1347

TOPIC TAGS: organoselenium compound, alkylation, phosphoric acid

ABSTRACT: The propyl ester of O,O-diethylselenothiophosphoric acid, prepared by alkylation of the potassium salt of O,O-diethylselenothiophosphoric acid with propyl bromide and containing a mixture of the thione and thiol isomers with a predominance of the thiol isomer, was saponified with the calculated amount of a 10% alcohol solution of potassium hydroxide. The butyl ester of O,O-diphenylselenothiophosphoric acid was saponified under analogous conditions. The potassium salt of O,O-diphenylselenothiophosphoric acid could not be isolated from the reaction mixture in this case, since the phenoxy groups are split out. The investigation of saponification reactions of esters of O,O-dialkylselenothiophosphoric acids is continuing. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 17Dec65 / ORIG REF: 003 / OTH REF: 002

Card 1/1

UDC: 547.26'118

ACC NR: AP6031393

SOURCE CODE: UR/0079/66/036/009/1712/1712

AUTHOR: Zemlyanskiy, N. I.; Chernaya, N. M.

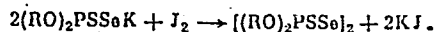
ORG: Lvov State University (L'vovskiy gosudarstvennyy universitet)

TITLE: Oxidation of potassium salts of O,O-dialkyl(aryl) phosphoroselenothionic acids

SOURCE: Zhurnal obshchey khimii, v. 36, no. 9, 1966, 1712

TOPIC TAGS: potassium dialkyl phosphoroselenothionate, oxidation, potassium diphenyl phosphoroselenothionate, phosphorous acid, potassium compound, selenic acid

ABSTRACT: Potassium salts of O,O-diethyl phosphoroselenothionic acid (I) and O,O-diphenyl phosphoroselenothionic acid (II) are oxidized with iodine to form the oxidation products:



Alcoholic solution of iodine was added dropwise to solution of I in acetone to form KI and  $C_8H_{10}O_4P_2S_2Se_2$  (bp 122°C,  $n_D^{20}$  1.4629) and to the solution of II in acetone to form  $C_{24}H_{20}O_4P_2S_2Se_2$ . Infrared spectroscopy of the product showed the presence of P = S and P = Se bonds. [WA-50; CBE No. 12]

SUB CODE: 07/ SUBM DATE: 10Dec65/ ORIG REF: 001/ OTH REF: 001/

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UDC: 547.26'118

L 10360-67 EWP(j)/EWT(m) RM

ACC NR: AP7003108

SOURCE CODE: UR/0079/66/036/007/1240/1243

AUTHOR: Zemlyanskiy, N. I.; Chernaya, N. M.; Turkevich, V. V.; Krasnoshchek, V. I.

ORG: L'vov State University (L'vovskiy gosudarstvennyy universitet)

TITLE: Esters of selenothiophosphoric acid. III. Mixed esters of O,O-dialkyl-(aryl)selenothiophosphoric acid

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1240-1243

TOPIC TAGS: organoselenium compound, ester, organic synthetic process, phosphoric acid, IR spectroscopy, chromatography

ABSTRACT: The authors synthesized for the first time the potassium salt of O,O-diethylselenothiophosphoric acid and investigated its reactions with alkylating agents: alkyl bromides, alkenes, and alkynes. Reaction of the potassium salt with certain alkyl bromides yielded new mixed esters of O,O-diethylselenothiophosphoric acid, the reaction proceeding at the selenium atom. The methods of infrared spectroscopy and thin-layer chromatography indicated that the alkylation of the potassium salt results in the formation primarily of the thione isomer. This was confirmed by synthesizing the isomeric propyl and isoamyl esters of O,O-diethylselenothiophosphoric acid with a thiol structure by the reaction of O,O-diethylchloroselenophosphate with potassium mercaptides. Mixtures of the isomers were obtained, and their formation was interpreted as a partial rearrangement of the thione isomer to the thiol isomer during its isolation. Orig. art. has: 1 figure, 2 formulas and 1 table. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 17May65 / ORIG REF: 005 / OTH REF: 002  
Card 1/1

UDC: 547.26118

0925 2069

The influence of illumination on the modulation of the  
conductivity of semiconductors in an external electric field

V. I. Lyubimov

Ukr. R. S. S. R.

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CHERNAYA, N.S. [Chorna, N.S.]

Effect of illumination on the field effect. Ukr. fiz. zhur. 3  
no.3:424-427 My-Je '58. (MIRA 11:10)

1. Institut fiziki AN USSR.  
(Semiconductors) (Electric fields)

CHERNAYA, N.S. [Chorna, N.S.]

Energy distribution of electron states on a germanium surface  
[with summary in English]. Ukr. fiz. zhur. 3 no.6:751-764 N-D '58.  
(MIRA 12:6)

1. Institut fiziki AN USSR.

(Electrons) (Germanium)

LYASHENKO, V.I.; CHERNAYA, N.S.

Mechanism of increasing long changes in the field effect.

Fiz. tver. tela 1 no.6:878-885 Je '59.

(MIRA 12:10)

1. Institut fiziki AN USSR.

(Germanium--Electric properties)

(Adsorption)

~~24(6)~~ 24.7700

66245

AUTHORS:

Lyashenko, V. I., Chernaya, N. S.

SOV/181-1-7-1/21

TITLE:

On the Nature of Relaxation Processes in the Field Effect

PERIODICAL:

Fizika tverdogo tela, 1959, Vol. 1, Nr 7, pp 1005-1014 (USSR)

ABSTRACT:

A germanium plate (15 · 10 · 0.15 mm, n- and p-type) with soldered tin electrodes was cleaned in hot hydrogen peroxide and then stored in air for a few weeks. During this time a stable oxide coating formed on the surface. The one plate of the measuring condenser was provided by one of these samples, whereas the second condenser plate consisted of either a brass plate or of a mica sheet coated by a semi-transparent platinum layer. Mica layers may be placed between the condenser plates. A voltage of 0.1 - 2.5 kv may be applied to the condenser. The complete condenser with mounting was housed within an evacuable pot. The vacuum obtained:  $\sim 10^5$  torr. It was also possible to fill the vacuum space with dry oxygen, nitrogen, CO<sub>2</sub>, or common air. The field effect was measured by means of a compensating circuit with the potentiometer PPTV=1 using a mirror galvanometer (sensitivity  $1 \cdot 10^{-10}$  a/mm) as balancing apparatus. The

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On the Nature of Relaxation Processes in the Field Effect

SOV/181-1-7-1/21

sensitivity of the total circuit was 0.001%. The following was investigated by experiments: The dependence of relaxation processes in the field effect on the medium surrounding the samples, dependence of the long-delay change of the field effect on different factors, e.g. the influence of the medium surrounding the samples. The change with time of an additional contact potential caused by an external electric field. Measurement of ionic currents and their influence on the relaxation processes in the field effect (sample in air environment). The experimental results confirm the importance of the ionic mechanism for the relaxation phenomena of the additional conductivity caused by an external electric field. The mechanism works in the following way: the mobile ions of the medium, surrounding the sample, reach the plate of the measuring condenser and screen progressively the germanium sample from the influence of the external electric field between the condenser plates. The formation of ions is mainly caused by the eigen-electronic emission of the semiconductor surface and the metallic electrode. The relaxation rate is influenced by the ionic concentration of the medium surrounding the sample. The relaxation constant depends on the

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66245

On the Nature of Relaxation Processes in the Field  
Effect

SOV/181-1-7-1/21

evacuation rate, on the filling gas and on the field strength between the sample and the metallic electrode. The ionic currents between the condenser plates accompanying the relaxation process in the field effect were measured and the following result was obtained: the charge accumulation on the layer near the surface of the sample - in consequence of the decline in the additional conductivity in the field effect - equals the charge which is carried by the ionic currents between the plates of the measuring condenser. The investigations of the following authors are especially mentioned in the beginning: Kalashnikov, Yunovich, Snitko, Lyashenko, Pavlenko, Litvinov. There are 6 figures, 3 tables, and 17 references, 5 of which are Soviet.

ASSOCIATION: Institut fiziki AN USSR, Kiyev (Physics Institute of the  
AS UkrSSR, Kiyev)

SUBMITTED: June 20, 1958

Card 3/3

84589

S/181/60/002/010/011/051  
B019/B070

9,4340 (1143/1160)  
24.7700 (1043 only)

AUTHORS: Lyashenko, V. I., Chernaya, N. S., and Gerasimov, A. B.

TITLE: A Study of the Energy Distribution of the Surface Electron States on a Purified Germanium Surface and in the Case of Adsorption of Oxygen

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 10, pp. 2421-2430

TEXT: The method of purifying the germanium surface is described in the first section, the process used being that proposed by Farnsworth. The block scheme of the vacuum arrangement and the experimental tube are shown in Figs. 1 and 2, respectively. The samples were p-type germanium with a resistivity of 40 ohm.cm and a volume lifetime of 300 microseconds. The surface purified lay in the (111) plane. The surface levels were determined by a method described in Refs. 4 and 14, which depends on the comparison of the theoretical and experimental dependences of the additional conduction on the surface charge. In Figs. 4, 5, and 6 are shown, respectively, the volt - ampere characteristic of the samples under different conditions of the surface, the additional conduction as a function of the

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84589

A Study of the Energy Distribution of the  
Surface Electron States on a Purified Germanium  
Surface and in the Case of Adsorption of Oxygen

S/181/60/002/010/011/051  
B019/B070

charge on the surface, and the charge in the surface states as a function of the surface potential. From the results it is concluded that on pure germanium surfaces, energy states of large density with  $E_t = -11kT$  are Tamm's states; that these levels are not formed by the adsorption of the residual gas; that it is improbable that the high density is due to the atoms which diffuse to the surface during the final annealing in the process of purification and which are difficult to desorb. The structure on the surface of germanium is found to deviate from the regular germanium structure; levels lying at  $E_t = -11kT$  were not observed for true surfaces. The model of Tamm's levels agrees completely with the data on oxygen adsorption. Oxygen lowers the density of the surface states. It is shown that levels with the parameters  $E_t = -2,5kT$  and  $N_t \approx 10^{11} \text{ cm}^{-2}$  are due to oxygen which saturates the free covalent bonds of the surface atoms of germanium. These "oxygen" levels could not be observed on true surfaces. N. N. Kvasnitskaya and K. K. Shtan'ko are thanked for breeding the crystal. There are 6 figures, 1 table, and 21 references: 5 Soviet, 14 US, and 1 Japanese.

Card 2/3

84589

A Study of the Energy Distribution of the Surface Electron States on a Purified Germanium Surface and in the Case of Adsorption of Oxygen S/181/60/002/010/011/051 B019/B070

ASSOCIATION: Institut fiziki AN USSR Kiyev (Institute of Physics of the AS UkrSSR, Kiyev)

SUBMITTED: March 29, 1960

Card 3/3

CHERNAYA, N.S.

2

27955

S/185/60/005/004/015/021

D274/D306

24,7700 (1143, 1138, 1164)

AUTHORS: Lyashenko, V.I. and Chornaya, N.S.

TITLE: Electron levels on a clean germanium surface

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 4, 1960,  
568-569

TEXT: A clean germanium surface was obtained by Farnsworth's method. The specimen was placed in a vacuum lamp; a vacuum of the order of  $(1 \text{ to } 2) \cdot 10^{-9}$  mmHg was controlled by means of an Alpert manometer. The surface was cleaned by an ion gun; the work function at the surface of the specimen was measured by means of an electron gun. The degree of cleanliness of the investigated surface was evaluated by the changes in the work function. A graph is shown with the volt-ampere characteristics related to the cleanliness of the germanium surface; these characteristics are compared with a standard curve. Taking into consideration the accuracy (0.05 v) of

X

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Electron levels...

27955  
S/185/60/005/004/015/021  
D274/D306

determining the work function by the method of volt-ampere characteristics displacement, and also the adsorption of various gases on the clean surface, it can be assumed that a surface was obtained on which less than 0.25 of the mono-atomic layer was absorbed. The increase in conductivity  $\Delta G$ , due to an external electric field (the field effect), was investigated,  $\Delta G$  being a function of the induced charge,  $\Delta G = f(Q)$ . The results of the measurements were compared with theoretical curves computed on the basis of Garrett-Brattain and Schrieffer's theory. This led to the conclusion that, on a clean germanium surface, a level exists with a depth of  $E_{t1} \approx -11$  kT with respect to the middle of forbidden zone, and a concentration  $N_{t1} \approx 2.5 \cdot 10^{14} \text{ cm}^{-2}$ . After measurements of the clean surface, oxygen was introduced by means of barium-oxide, and the field-effect was again measured. This led to the establishment of a newly formed level with  $E_{t2} \approx -2.5$  kT with respect to the middle of the forbidden zone and a concentration of approximately  $10^{11} \text{ cm}^{-2}$ .

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Electron levels...

27955  
S/185/60/005/004/015/021  
D274/D306

The concentration of the levels is of the same order as the surface concentration of germanium atoms. It can be assumed that these are Tamm-levels. The levels which were observed after the oxygen absorption, are "oxygenic" levels. They can be observed at not very low pressures, too. There is 1 figure and 6 non-Soviet-bloc references. The references to the English-language publications read as follows: H.E. Farnsworth, R.E. Schiller, T.H. George, R.M. Burger, J. Appl. Phys., 26, 252, 1955; 29, 1150, 1958; G. Barnes, P. Bambury, Proc. Phys. Soc., 71, 1020, 1958; Phys. Chem. Solids, 8, 11, 1959; I.A. Dillon, H.E. Farnsworth, J. Appl. Phys., 28, 174, 1957; C.G. Garrett, W.H. Brattain, Phys. Rev., 99, 376, 1955; I.R. Schrieffer, Phys. Rev., 97, 641, 1955; W.L. Brown, W.H. Brattain, C.G. Garrett, H.C. Montgomery, Semicond. Surf. Phys., p. III, 1956. X

ASSOCIATION: Instytut fizyki AN USSR (Physics Institute, AS UkrSSR)

SUBMITTED: March 28, 1960

Card 3/3

27956  
S/185/60/005/004/016/021  
D274/D306

94.7700 (1143, 1138, 1144)

AUTHOR: Chornaya, N.S.

TITLE: Influence of oxygen on the energy distribution of  
surface levels in germanium

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 4, 1960,  
569-571

TEXT: The method of investigation was based on a comparison between the theoretical and experimental curves  $\Delta G = f(Q)$  (the dependence of the conductivity-increment on the surface charge). Hence the field effect was investigated. The germanium specimen was placed in an experimental lamp which also contained an Alpert manometer, a getter, and an oxygen source (barium oxide). The specimens were cut from two different germanium single-crystals. The specimens were cleaned by heating in a vacuum of the order of  $10^{-8}$  to  $10^{-9}$  mmHg. First, the dependence  $\Delta G = f(V)$  (V being potential of

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Influence of oxygen...

27956  
S/185/60/005/004/016/021  
D274/D306

the external field) was measured. The specimens were repeatedly heated and cooled; measurements were taken after each heating. The field effect observed immediately after heating was, as a rule, unstable and the experimental points were greatly spread. On the other hand, no instability was observed in measurements taken several hours after the heating stopped. After the measurements of the clean surface, the oxygen was let in and new measurements taken. A figure shows the dependence  $\Delta G = f(Q)$ . The field effect greatly increased after the absorption of oxygen. Several more measurements of  $\Delta G = f(Q)$  were made, the specimen being kept in the experimental lamp for  $2\frac{1}{2}$  and 15 hours, respectively, and then for a few seconds only. In each case the curves had a minimum which corresponded to negative values of  $Q$ . Heating of the specimens shifted the minimum towards smaller absolute values of  $Q$ . The adsorption of residual gases had the opposite effect. The most typical experimental curves were compared with the theoretical curves based on Garrett-Brattain and Schrieffer's theory. This led to determining the parameters of surface levels, which are given in a table. Two levels proved to be

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Influence of oxygen...

S/185/<sup>27956</sup>60/005/004/016/021  
D274/D306

effective in the present investigation. It is noted that in all the cases the same levels were observed after heating, irrespective of the magnitude of the volume conductivity. One of the levels has a depth of  $E_{t1} = 2.5 \text{ kT}$  with respect to the middle of the forbidden zone and a concentration  $N_{t1}$  of the order of  $10^{11} \text{ cm}^{-2}$ . [Abstracter's

note: In the original, there are, apparently, mistakes in the notations for  $E$  and  $N$ ]. For the other level:  $E_{t2} \approx 8 \text{ kT}$ ,  $N_{t2} \approx 10^{12} \text{ cm}^{-2}$ .

After the absorption of oxygen, the concentration of the levels decreases considerably, and instead of  $E_{t2}$  a new level appears with  $E = 5.4 \text{ kT}$ , and  $N \approx 10^{11} \text{ cm}^{-2}$ . As the value of  $N$  depends on the pressure of the oxygen in the lamp, it can be assumed that the new level is due to the oxygen. The levels with  $E = 2.5 \text{ kT}$  and  $E = 5.4 \text{ kT}$  were already observed in earlier investigations (by other authors). As to the level  $E \approx 8 \text{ kT}$ , nothing definite about its nature can be stated. There are 2 figures, 1 table and 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc. The 4 most recent references to English-

Card 3/4

Influence of oxygen...

27956  
S/185/60/005/004/016/021  
D274/D306

language publications read as follows: I.T. Low, J. Phys. Chem., 59, 543, 1955; W.L. Brown, W.H. Brattain, G.C.B. Garrett and H.C. Montgomery, Semiconductors Surface Phys., p. III, 1956; G. Barnes, P. Banbury, Proc. Soc., v. 71, 1920, 1958; J. Phys. Chem. Solids, 8, III, 1959; G.G. Garrett, W.H. Brattain, Phys. Rev., 99, 376, 1955; I.R. Schrieffer, Phys. Rev., 97, 641, 1955.

ASSOCIATION: Instytut fizyki AN USSR (Physics Institute, AS UkrSSR)

SUBMITTED: March 28, 1960

Card 4/4

LYASHENKO, V.I.; CHERNAYA, N.S.; GERASIMOV, A.B.

Investigating the energy distribution of surface electron states on a clear germanium surface in conjunction with the absorption of oxygen. Fiz. tver. tela 2 no.10:2421-2430 '60. (MIRA 13:12)

1. Institut fiziki AN USSR, Kiyev.  
(Germanium)

KOVBASYUK, V.P.; CHEFNAYA, N.S. [Chorna, N.S.]

Excess conductivity of photosensitive films of lead sulfide.  
Ukr. fiz. zhur. 8 no.9:1030-1032 S '63. (MIRA 17:8)

1. Institut poluprovodnikov AN UkrSSR, Kiev.

L 1359-66 EP(s)-2/EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5022011

UR/0286/65/000/014/0078/0078

AUTHOR: Smetankina, N. P.; Chernaya, N. S.; Oprya, V. Ya.; Kuznetsova, V. P.;  
Karbovskaya, L. Ye.

TITLE: Preparation of vinylpolysiloxane. Class 39, No. 172997

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 78

TOPIC TAGS: polysiloxane, vinyl group, vinylpolysiloxane, semiconducting polymer

ABSTRACT: An Author Certificate has been issued for a preparative method for vinylpolysiloxanes involving the condensation [sic] of vinyl group-containing silanes at 150C. To impart semiconducting properties to the polymer, vinylpolysiloxanes are heat treated at 700-1100C.

[B0]

ASSOCIATION: Institut khimii polimerov i monomerov AN UkrSSR (Institute of the Chemistry of Polymers and Monomers, AN UkrSSR)

SUBMITTED: 08Feb64

ENCL: 00

SUB CODE: 00, 00

NO REF SOV: 000

OTHER: 000

ATD PRESS: 4087

Card 1/100

L 29-3-66 EWT(m)/EPF(c)/EWP(j)/T RM

ACCESSION NR: AP5025041

UR/0286/65/000/016/0085/0085

678.84

AUTHOR: Kuznetsova, V. P.; Smetankina, N. P.; Oprya, V. Ya.; Chernaya, N. S.

TITLE: Preparation of organosilicon polymers, Class 39, No. 173953

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 85

TOPIC TAGS: semiconducting polymer, organosilicon compound, acetylene alcohol

ABSTRACT: An Author Certificate has been issued for a preparative method for semi-conducting organosilicon polymers based on acetylenic alcohols. The method involves thermal condensation of organosilicon acetylenic alcohols followed by heat treatment of the polymers in argon at 300—400C. [B0]

ASSOCIATION: Institut khimii polimerov i monomerov AN UkrSSR (Institute of the Chemistry of Polymers and Monomers, AN UkrSSR)

SUBMITTED: 20Jan64

ENCL: 00

SUB CODE: ac, cc

NO REF SOV: 000

OTHER: 000

ATD PRESS: 4/08

Card 1/1 DP

ACC NR: AT7006292 (N) SOURCE CODE: UR/0000/66/000/000/0039/0045

AUTHOR: Kuznetsova, V.P.; Smetankina, N.P.; Chernaya, N.S.; Oprya, V.Ya.; Frolova, Ye.K.

ORG: none

TITLE: Study of the electrical and physical properties of polymers prepared from organosilicon tertiary diacetylenic alcohols (communication 9)

SOURCE: AN UkrSSR. Sintez i fiziko-khimiya polimerov (Synthesis and physical chemistry of polymers). Kiev, Naukova dumka, 1966, 39-45

TOPIC TAGS: organic semiconductor, semiconducting polymer, organosilicon compound

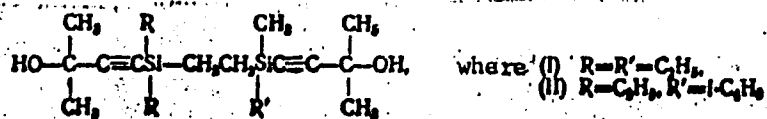
ABSTRACT: A study has been made of the electrical properties of polymers prepared by the thermal polymerization of certain tertiary diacetylenic organosilicon alcohols of symmetric or unsymmetric structure having an ethylene

Card 1/3

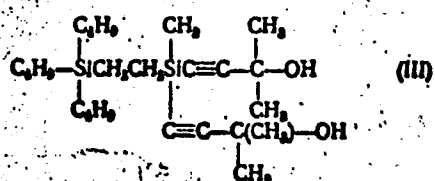
UDC: none

ACC NR: AT7006292

bridge between the silicon atoms:



and



Card 2/3

ACC NR: AT7006292

The polymers were subjected to heat treatment at 200—600°C under argon. The heat-treated polymers were either readily fusible resins, or fine powders which could not be pressed at pressures up to  $10^4$  kg/cm<sup>2</sup> and temperatures of several hundred degrees centigrade. Therefore, conductivity measurements were carried out for samples directly under pressure ( $10^3$  kg/cm<sup>2</sup>). It was found that prior to heat treatment, the polymers were typical insulators ( $\rho$ ,  $> 10^{14}$  ohm cm). Heat treatment at 300—500°C produced products with organic-semiconductor and paramagnetic properties (unpaired spin concentration,  $10^{18}$ — $10^{19}$  spin/g). The electrical conductivity of the polymers had no ionic component. The temperature dependence of resistivity measured at 20—150°C obeyed an exponential law. The resistivity at 20°C was of the order of  $10^{11}$  to  $10^6$  ohm·cm, and the activation energy for conduction was 0.3—0.5 ev. Each polymer had a critical heat-treatment temperature beyond which resistivity dropped sharply; for polymers of I and II it was about 400°C, and for the polymer of III, about 300°C. IR spectroscopy and weight loss data suggest that on heat treatment at 300—400°C, the polymers undergo partial degradation and formation of conjugated regions. Orig. art. has: 3 figures. [SM]

SUB CODE: 11, 20/ SUBM DATE: none/ ORIG REF: 004/ ATD PRESS: 5116

Card 3/3

XOVBASYUK, V.P.; CHERNAYA, N.S. [Chorna, N.S.]

Long-term component of the photoconductivity of lead sulfide  
films. Ukr. fiz. zhur. 8 no.10:1150-1156 0 '63.  
(MIRA 17:1)

1. Institut poluprovodnikov AN UkrSSR, Kiyev.

AUTHORS: Vasenko, Ye. N., Chernyavskaya, A. P., SOV/48-22-9-31/40  
Chernaya, N. V.

TITLE: Infrared Spectra of Salt Solutions (Infrakrasnyye spektry  
solevykh rastvorov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958,  
Vol 22, Nr 9, pp 1125 - 1125 (USSR)

ABSTRACT: This is an investigation of the influence of ions  
on the structure of fluids, which is determined by inter-  
molecular hydrogen bindings. The authors used the  
vibration spectrum of the saturated solutions of  
potassium nitrate and of potassium bromide in formamide  
as a vehicle of their investigation, as the spectrum  
of formamide is well studied. Moreover, formamide  
exhibits a considerable similarity to water, as the  
nature of its intermolecular bindings leads to the  
formation of a spatial lattice structure spreading through  
the whole fluid. The C-N bond of the formamide was  
chosen for the reason that its position is noticeably  
altered at a formation or a rupture of the hydrogen

Card 1/2

## Infrared Spectra of Salt Solutions

SOV/48-22-9-31/40

bindings in which the amino group as well as the carbonyl group participate (Fig 1). It is besides rather intensive and is comparatively far removed from the others. The absorption spectrum was recorded of saturated potassium nitrate solution in formamide in the range of  $1200 \div 1500 \text{ cm}^{-1}$  and of saturated potassium bromide solution in formamide in the same spectral region with a ~~TKS~~  $\lambda$ -11 spectrometer with a common-salt prism. The absorption spectra which were recorded for the sake of comparison showed in the investigated range a noticeable absorption which is not characteristic for pure water (with potassium bromide - two bands). The origin of this absorption is at present under investigation as well as the dependence of the absorption spectra upon the concentration in the region already investigated and in the frequency range of the N-H, C=O in formamide and O-H in water. There are 2 references, 2 of which are Soviet.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnical  
Card 2/2 Institute)

VASENKO, Ye.N.; CHERNAYA, N.V.

Kinetics of the hydrolysis of acetic anhydride in a mixed solvent.  
Dokl. LPI 5 no. 1/2:169-171 '63. (Mir 17:6)

SHNAYDERMAN, S.Ya.; CHERNAYA, N.V.

Determination of titanium by means of chromotropic acid in acetic acid solutions. Izv. vys. ucheb. zav.; khim. i khim. tekhn. 7 no.3:515-517 '64.

(MIRA 7:10)

1. Kiyevskiy politekhnicheskoy institut, kafedra analiticheskoy khimii.

SHNAYDERMAN, S.Ya.; CHERNAYA, N.V.

Pyrocatechinate and pyrogallate complexes of titanium  
in methanol and water-methanol solutions. Zhur. neorg.  
khim. 10 no.1:224-230 Ja '65. (NIRA 18:11)

1. Submitted June 5, 1963.

SHNAYDERMAN, S.Ya.; CHERNAYA, N.V.

Effect of alcohol and water-alcohol solvents on the  
stability of titanium phenol complexes. Zhur.neorg.khim.  
11 no.1:134-137 Ja '66. (MIRA 19:1)

1. Submitted June 30, 1964.

DZHEVAGA, I., kand. tekhn. nauk; IVASHCHENKO, G., inzh.; CHERNAYA, O.,  
tekhnik

Reconditioning the rudder stock by welding. Mor. flot 25 no.11:  
28-29 N '65. (MIRA 18:11)

CHERNAYA, R.

USSR/Engineering

Oct/Dec 48

Insulation, Thermal  
Construction Materials

"Testing Thermal-Insulating Materials," R. Chernaya,  
Thermal Insulation Lab, Leningrad Inst of Refrig-  
eration and Milk Ind, 3 pp

"Knirodil' Tekh" No 4

PA 56/49T32

Includes table giving results of determining thermal  
properties of following materials: mineral wool of  
Moscow "Izoplit" Plant, glass wets, the algae  
Desmarestia aculeata (obtained near Murmansk), casein  
wool, Baum slabs, mica molds, specimens from paper  
waste, shells using paper waste, birch and pine

56/49T32

USSR/Engineering (Contd)

Oct/Dec 48

shavings, polychloromethyl plastics, and blocks  
from pine and birch shavings. Some of these materi-  
als have good thermal-insulating properties, and  
may be used in construction work as well as in normal  
thermal-insulation applications.

56/49T32

DANILOVA, Galina Nikolayevna; FILATKIN, Vladimir Nikolayevich;  
CHERNAYA, Roza Grigor'yevna; SHCHERBOV, Mark Gennadiyevich;  
Prinimali uchastiye: BUCHKO, N.A.; VAS'KOV, Ye.T., inzh.;  
CHICHKOV, N.V., red.; GROMOV, A.S., tekhn. red.

[Collection of problems and calculations on heat transmission]  
Sbornik zadach i raschetov po teploperedache. By G.N. Danilova  
i dr. Moskva, Gos.izd-vo torg. lit-ry, 1961. 270 p.

(Heat transmission)

(MIRA 15:1)

CHERNAYA, R.N. (Krasnoyarsk)

Work of a volunteer department of public health in a large  
city district. Zdrav. Ros. Feder. 6 no.2:11-13 F '62.

(MIRA 15:3)

(KRASNOYARSK---PUBLIC HEALTH)

DONCHENKO, N.A.; CHERNAYA, R.P.

Determining the composition of a solvent for dewaxing units.  
Nefteper. i neftekhim. no.1:16-17 '65.

(MIRA 18:6)

1. Omskiy neftepererabatyvayushchiy zavod.

SENA, Lev Aronovich; ~~CHERNAYA~~, S.A., redaktor; GAVRILOV, S.S., tekhnicheskii  
redaktor

[Luminescent tubes] Svetlashchiesia trubki. Moskva, Gos. izd-vo  
tekhniko-teoret. lit-ry, 1956. 54 p. (Nauchno-populiarnaya biblioteka,  
no.88) (MIRA 10:1)  
(Fluorescent lighting)

ZAGURSKIY, V.A.; ZAL'TSMAN, L.G.; CHERNAYA, S.M.; CHAYKOVSKIY, Yu.B.

The AG-16 and AG-18 automatic electroplating lines. Avtom. i prib. no.2:  
66-69 Ap-Je '65. (MIRA 18;7)

BYKOV, L.N., inzh.; ZGURSKIY, V.A., inzh.; ZAL'TSMAN, L.G., inzh.;  
CHERNAYA, S.M., inzh.

Using the BRT-200M current reverser in silver plating.  
Mashinostroenie no.3:81-83 My-Je '65. (MIPA 18:6)

CHERNAYA, T.M.

Comparative evaluation of graphic methods of separating subsurface  
components on streamflow hydrographs. Trudy GGI no.114:87-100 '64.  
(MIRA 17:11)

USSR / Microbiology. Microbes Pathogenic to Man and F-5  
Animals. Bacteria. Bacteria of the Intestinal  
Group.

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72136.

Author : Chernaya, T. T.

Inst : Not given.

Title : Clinical Evaluation of Widal's Reaction in Typhoid  
Patients Treated with Synthomycin.

Orig Pub: Vrachebn. delo, 1956, No 12, 1261-1266.

Abstract: The dynamics of titers of agglutinins in 70 typhoid  
patients treated with Synthomycin, and in 30 of  
the same patients treated symptomatically, were  
studied. Titers of H-agglutinins after the first  
cycle of Synthomycin therapy increased in 33, and  
remained without change or decreased in 31 patients.  
After the second cycle, a decrease was noted of the

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USSR / Microbiology. Microbes.Pathogenic to Man and F-5  
Animals. Bacteria. Bacteria of the Intestinal  
Group.

Abs Jour: Ref Zhur-Biol., No 16, 1958, 72136.

Abstract: therapy there is more often observed not an in-  
crease but a decrease of the titers of the ag-  
glutinins. -- I. N. Kamenskaya.

Card 3/3

USSR/Microbiology - Microbes Pathogenic for Man and Animals.  
Bacteria. Bacteria of the Intestinal Group.

F

Abs Jour : Ref Zhur Biol., No 22, 1958, 99392

typhoid fever and diagnostic media of paratyphoid A and D. The percentage of positive reactions in the modifications of Levkovich was 100, and by the method of Widal, 81.1; the titers of O- and H- Agglutinins in the modification of Levkovich were 1.5-2 times higher. Group reactions in the modification of Levkovich were 4-5 times less frequent, and their titers were significantly lower than in the usual reaction of Widal. The percentage of positive reactions in the modification of Levkovich was also 2-3 times smaller in patients with other infectious diseases. The author recommends the Widal reaction in the modification of Levkovich as a more sensitive and more specific one for clinical practice. -- M.A. Gruzman

Card 2/2

- 71 -

CHERNAYA, T.T.

CHERNAYA, T.T., Cand Med Sci — (diss) "Clinical evaluation of the Vidal reaction in typhoid fever patients treated with syntomycin." Kiev, 1958. 14 pp (Kiev Order of Labor Red Banner Med Inst im A.A. Bogomolets). 200 copies (KL, 20-58,102)

PADALKA, B.Ya., prof., CHERNAYA, T.T.

Effective method for treating typhoid fever with synthomycin  
and levomycetin and the prevention of relapses. Vrach.delo no.7  
709-712 J1'58 (MIRA 11;9)

1. Kafedra infektsionnykh bolezney (zav. - prof. B.Ya. Padalka)  
Kiyevskogo meditsinskogo instituta.  
(CHLOROMYCETIN)  
(TYPHOID FEVER)

CHERNAYA, T.T., kand.med.nauk; KORMANOVA, Ye.Ye.

Characteristics of the course of influenza during the epidemic of 1959.  
Vrach. delo no.1:116-121 Ja '62. (MIRA 15:2)

1. Kafedra infektsionnykh bolezney (zav. - prof. B.Ya.Padalka)  
Kiyevskogo meditsinskogo instituta.  
(INFLUENZA)

CHERNAYA, T.T. (Kiyev)

Determination of neutral 17-ketosteroids in the urine of influenza patients by means of the fraction method. Sbor.nauch.trud. Inst. infek.bol. no.4:203-209 '64. (MIRA 18:6)

L 28431-56 EWT(1)/T JK

ACC NR: AP6019123

SOURCE CODE: UR/0016/65/000/011/0138/0139

AUTHOR: Zatulovskiy, B. G.; Sokol, A. S.; Bondarenko, V. I.; Chernaya, T. T.; Shkol'nik, L. Ya.; Bogachik, L. I.

33  
B

ORG: Kiev Institute of Epidemiology and Microbiology (Kiyevskiy institut epidemiologii i mikrobiologii); Kiev Medical Institute im. Bogomolets (Kiyevskiy meditsinskiy institut); Zaporozh'ye Institute for the Advanced Training of Physicians (Zaporozhskiy institut usovershenstvovaniya vrachey)

TITLE: Ornithosis in some Ukrainian cities

SCOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 11, 1965, 138-139

TOPIC TAGS: epidemiology, antibody

ABSTRACT: The purpose of the investigation was to detect patients with ornithosis and to study the epidemiological and clinical characteristics of the cases discovered, mainly in Kiev and Zaporozh'ye. Twenty cases were discovered among 640 patients and convalescents from diseases with various diagnoses (influenza, pneumonia, typhoid, meningoencephalitis, etc.)

The onset of the diseases was generally abrupt, with elevated temperature and chills, headache, chest pain, and dry cough. Some patients complained of nausea and vomiting, loss of appetite, and insomnia. The feverish period ranged from 6 days to 2-3 weeks. The lungs were involved in al-

Card 1/2

UDC: 616.988.73

L 28431-66

ACC NR: AP6019123

most all cases. Inflammatory foci were found within a day or two after admission to the hospital. The time that complement-fixing antibodies appeared and the height of the titers varied from person to person.

Epidemiological investigation revealed that, with the exception of a single family, the disease was random. Although many individuals were hospitalized late, none of their family or friends contracted the disease, the principal source of which was pigeons. [JPRS]

SUB CODE: 06/ SUBM DATE: 17Dec64 .

Card 2/2

SOV/138-59-3-5/16

AUTHORS: Savinkova, A.M., Voyutskiy, S.S., Chernaya, V.V. and Arinkina, K.I.

TITLE: The Effect of Syneresis Conditions on the Properties of Latex Gels and Their Vulcanisates (Vliyaniye usloviy sinerezisa na svoystva lateksnykh geley i vulkanizatorov iz nikh)

PERIODICAL: Kauchuk i rezina, 1959, Nr 3, pp 18 - 22 (USSR)

ABSTRACT: Detailed investigations were carried out with various media and conditions of syneresis and their effect on the rate of process determined. The changes in the physical and mechanical properties of crude latex gels and their vulcanisates were also tested. Experiments were carried out with natural latex ("Kvaliteks") and synthetic Nairit latex L-4; the composition of both rubber mixtures is given. The latex gels were moulded into 30 mm diameter rings (of 14 mm width and 2 mm thickness). Rectangular sheets (314 x 112 mm) were also prepared to test the physical and mechanical characteristics of the gel after drying and vulcanisation. The humidity of the gels of both latexes changed with the length of time of syneresis in various media. The following media were

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used;  $H_2O$ , electrolyte solutions, triethanolamine and xylitane. The syneresis was effected at 50 to 60°C in hot water, triethanolamine, xylitane and a 10% solution of NaOH and at room temperature in all other media (Figure 1). The most intensive effect was noted during the first 2 to 3 hours. Syneresis proceeds slower in air than in water. It was also observed that the rate of syneresis was greater in hot than in cold water, and that it proceeded more intensively in xylitane, triethanolamine and ethyl alcohol; this is due to the dehydrogenation action of the hydroxy groups in the compounds. Triethanolamine was most active when used with "Kvaliteks" gels. Barium chloride was most effective when used with the latex L-4; this is obviously due to the stabiliser which forms an insoluble compound with a divalent cation  $Ba^{++}$ . Barium chloride acts on "Kvaliteks" (containing a protein emul-

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sifier) to a lesser degree; concentrated HCl is more effective than weak acetic acid. Syneresis proceeds at a slower rate in a NaOH solution than in water; this is due to the peptizing action of the hydroxyl ion. Figure 2 gives curves which characterize the strength of crude gels after various periods of syneresis. Data on the strength of gels with identical humidity are shown in the form of curves (Figure 3). In xylitane the strength of gels increases very slowly; in triethanolamine the strength of gels increases at first on lowering the humidity but soon decreases sharply. Maximum values of strength are observed when syneresis is carried out in a NaOH solution. The largest values of elongation were obtained when the process was carried out in xylitane (950 to 1 050%) and in hot water (up to 850%). Physical and mechanical characteristics of vulcanised films from gels, when syneresis was carried out in various media for two hours, are given in a table. Resistant vulcanisates were prepared from gels when syneresis proceeded in hot water, on air, in solutions of barium chloride, xylitane, acetic acid and NaOH. The lower values of

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resistance of gel vulcanisates prepared in triethanol-amine is probably due to the swelling of the rubber in the solution. Films prepared by gelling and subsequent syneresis on air, after having been kept in triethanol-amine for three hours at 50 to 60°C, showed a 5.4% increase in weight. The strength of vulcanisates of gels decreases when syneresis is carried out in ethyl alcohol and in a HCl solution. Further experiments were made to show that the length of syneresis affected the strength of the vulcanisates only to a slight degree (no results are given). The effect of the temperature of water on syneresis and on the physical and mechanical characteristics of the gels was also investigated. The latex gel L-4 was subjected to syneresis for one hour in water of varying temperature; results are given in Figure 4. Cracks appeared in the gel when the syner-

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esis temperature was increased to 70 - 80°C. This is  
due to the large rate of shrinking of the gel. Optimum  
results were achieved when the water temperature was of  
an order of 60°C.

There are 4 figures, 1 table and 4 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovykh i  
lateksnykh izdeliy (Scientific Research Institute for Rubber and  
Latex Articles)

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15(9)

AUTHOR:

Chernaya, V.V., Candidate of Chemical Sciences

SOV/63-4-1-7/31

TITLE:

Products From Latex and Methods for Their Production (Izdeliya iz lateksa i metody ikh izgotovleniya)

PERIODICAL:

Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 1, pp 50-55 (USSR)

ABSTRACT:

Rubber products made directly of latex are produced by repeated dipping, coagulation dipping, ionic deposition, gelatinization, dipping in a heat-sensitive mixture, and electric deposition. Repeated dipping is used in the production of very thin products. In the USSR ionic deposition is the method for producing products of 0.2 - 1.0 mm thickness. The thickness of products made by gelatinization is determined by the clearance between the core and the mold. Electric deposition is used for coating metal parts. For obtaining a heat-sensitive mixture gelatinizing agents, like zinc oxides, are added to the latex so that gelatinization can take place. For many products natural latexes are still in use. In the USSR synthetic polychloroprene latexes are most important. Recently carboxyl-containing latexes are employed on a broader scale. The vulcanization of these poly-

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mers is effected by the interaction of the carboxyl groups with polyvalent metals (Zn, Mg, Ca). Latexes containing 4% of methacrylic acid may be used for the ionic deposition method. Powder-like ingredients are ground to dispersions before adding to the latex. Sulfur is added in the form of the monoethanolamine polysulfide, the plasticizers in the form of emulsions. The syneresis of the gel is accelerated in water or electrolyte solutions. Drying is carried out by hot air in special chambers. Rubber gloves are produced by ionic deposition. A 10 - 15% calcium chloride solution in water with the addition of cosmetic kaolin for viscosity is used as coagulating agent. The tear-resistance is increased by the addition of 15% carbon black. Gloves for handling slippery materials, like fish, are made rough by submerging the gel in a mixture of alcohol, acetic acid and toluene. Oil- and gasoline-resistant gloves are made of divinyl-nitrile latex SKN-40. Rubber films for meteorological purposes are made of neoprene latex [Ref 34]. If inflated, their diameter is increased 4 - 5 times. Sponge rubber is produced by mechanical [Ref 39] or chemical [Ref 40] foam formation. Mechanically formed rubber foam is cast into molds which are then vulcanized. Chemical foam formation is obtained by adding hydrogen peroxide.

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The foam is frozen and gelatinized by carbon dioxide. It is vulcanized on thawing. In the USSR sponge rubber is also made of natural latex. Research work is going on regarding the use of the divinyl-styrene latex SKS-50 / Ref 5, 45/. For the production of rubber threads the latex is pressed through capillar nozzles into a coagulation solution. It is then washed, dried and vulcanized.

There are 3 tables and 45 references, 21 of which are Soviet, 14 English, 4 Indian, 3 American, 1 French, 1 Dutch and 1 German.

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S/138/59/000/07/07/009

AUTHORS: Znamenskiy, N. N., Chernaya, V. V., Novikov, V. I.

TITLE: The Effect of Ultrasonic on Latexes

PERIODICAL: Kauchuk i Rezina, 1959, No. 7, pp. 37-40

TEXT: A study was made on the regularities of the effect of ultrasonic of various frequencies and duration on the colloidal-chemical properties of chloroprene latex, on the  $\alpha$ - and  $\kappa$ -varieties of the polymer. The authors briefly outline the already existing information of the effects of ultrasonic on various high polymers, given in Ref. 1-6 and 7. In studying the structural changes which may take place under the effect of ultrasonic, the authors stress the importance of considering the more complex system of latexes occurring as a result of additions of different compounds such as stabilizers and emulsifiers, etc. The experimental procedure is outlined in detail, whereby it was shown that in subjecting the latex to ultrasonic over a period of up to 90 min, the absolute viscosity of the latex decreases only slightly, the coagulation threshold increases somewhat, and the values of the pH of the latex and the solubility of the raw gel in the dichloroethane remain almost unchanged. During the process of ultrasonic treatment the degree of saturation of the particle's surface with the emulsifier and

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the size of the particles decrease, which proves that ultrasonic has a dispersing effect. The  $\alpha$ -polymer, taken separately, and diluted in dichloroethane, is destroyed under the effect of ultrasonic to a certain degree, namely, to 6.0% of the initial one, (the relative viscosity of the solution decreases). The  $\mu$ -polymer, after 6 hours of treatment at a frequency of 300 kc passes over into solution in dichloroethane by as much as 7.76% of the initial amount, which shows that it has a stabler lattice structure. The results of the study of the physico-mechanical indices of the films obtained from latex, after different periods of ultrasonic treatment and conditions of vulcanization are submitted in Table 5, from which it is clearly seen that ultrasonic has a definite effect on the physico-mechanical properties of the vulcanizates. There are 5 tables, 3 graphs, 11 abstracts: 7 Soviet, 3 English, 1 German.

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(Scientific Research Institute of Rubber and Latex Products)



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S/138/60/000/01/06/010

AUTHORS: Savinkova, A.M., Voyutskiy, S.S., Chernaya, V.V.

TITLE: Investigation of the Effect of Various Factors on the Gelatinization of Latexes <sup>15</sup>

PERIODICAL: Kauchuk i Rezina, 1960, No. 1, pp. 28 - 32

TEXT: Initial pH value of latex, contents of dry residue in latex and temperature during the process of gelatinization are the factors, considerably affecting the gelatinization process and the quality of gels of revertex and synthetic latex L-3. This article deals with the results of the investigation made with a view to determining the influence of the above mentioned factors on the gelatinization of other latexes, such as L-4, <sup>15</sup>L-7 and revultex. Table 1 shows the characteristics of the various latexes under investigation. Gelatinizing was conducted in the usual manner with zinc oxide and ammonium chloride as sensitizer. The stability of the gel obtained from gelatinization was determined by the method of the Moscow Institute of Fine Chemical Technology im. M.V. Lomonosov. From Graphs 1 and 2 showing the influence of pH on the process of gelatinization, it can be seen that for latexes L-4, L-7 and revultex the minimum duration of gelatinization <sup>VB</sup>

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corresponds to the same pH value, viz. 10.3 which is the best pH value for gelatinization of all latexes investigated. With pH value below 10.3 the physico-mechanical properties of the gel are gradually deteriorating, contrary to observations made by foreign scientists. It has been found that gels obtained at 20°C from synthetic latexes L-4 and L-7 are more stable than corresponding gels from qualitex and revultex. As far as physico-mechanical properties of vulcanized gels are concerned, it has been demonstrated that these do not depend on the pH value of the initial latex. In the case of dilution of latexes with distilled water the pH value can decrease considerably, while gelatinization is influenced by 2 factors: reduction of concentration of the dispersed phase and increased concentration of active hydrogen ions. Duration of gelatinization of L-4 latex and of qualitex increases with their dilution. Physico-mechanical properties of crude gels deteriorate as a result of dilution of latex. The stability of vulcanized films, obtained from crude gels, as experiments have shown, is not affected by dilution of latex, which is due to the fact that during vulcanization all films acquire the same structure. With an increase in temperature the duration of gelatinization of all latexes decreases rapidly. With an increase in temperature during gelatinization the physico-

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mechanical indices of crude gels from latex L-4 and L-7 improve at first and deteriorate subsequently. The stability of crude gels of qualitex and rivultex is constantly improving under rising temperature. There are 4 tables, 6 diagrams and 3 references: 1 Soviet, 1 English and 1 Dutch. ✓B

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S/138/60/000/006/005/008  
A051/A029

AUTHORS: Savinkova, A.M., Voyutskiy, S.S., Chernaya, V.V.

TITLE: The Gelatination of Carboxylate Latexes

PERIODICAL: Kauchuk i Rezina, 1960, No. 6, pp. 34 - 40.

TEXT: A study was made of the gelatination process of carboxylate butadiene-styrene latexes and the properties of the obtained gels and their vulcanizates. Although it is possible to produce test samples of rubber articles by the ion deposit method from carboxylate butadiene-styrene latexes, (produced at the VNIISK), the application of the CK-30 (SKS-30) latex prepared in Nekal VKh emulsifier is impossible since it yields loose unstable gels covered with deep cracks. Samples of the butadiene-styrene latexes, the polymer of which contains 30 to 50% styrene and various quantities of metacrylic acid, were taken for the experiments. It was found that an increase in the pH of the initial carboxylate latex in the case of the gelatination production method, contrary to the ion deposit method, does not improve the physico-mechanical properties of the gel and increases the duration of gelatination. It was established that with an

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increase in the amount of gelatinizing agents, such as zinc oxide, at constant amounts of ammonium chloride and ammonia, the gelatination period decreases in equilateral hyperbolae similar to those obtained in the gelatination of revertex and  $\sqrt{L-35}$  (L-35) latex. The shortening of the gelatination period with the introduction of a large quantity of gelatinizing agents is explained by the accelerated astabilization of the particles. A deterioration in the physico-mechanical properties of the gel with the introduction of large amounts of zinc oxide is explained by the fact that in this case the astabilization of the globules takes place too quickly and when colliding with one another they stick together over a large portion of their surface. The ammonia concentration was also found to have an effect on the physico-mechanical properties of the raw gel. The physico-mechanical properties of vulcanized gels do not depend on the quantity of ammonium chloride and ammonia introduced. With a decrease in the plasticity of the polymer the resistance of the raw gels of the carboxylate latexes changes according to a curve with its maximum corresponding to a given value of plasticity, varying for the different latexes. An increase in the content of carboxylate latexes in the polymer and of metacrylic acid

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over 1.5% brings about a drop in the physico-mechanical properties of the raw gel. A drop in the resistance of the raw gel with a significant drop in the polymer plasticity of the carboxylate latexes, or with an increase in the metacrylic acid content, is due to a decrease in the polymer autohesion and an impairment of the coalescence of the latex globules. The possibility of producing articles, such as footwear, from carboxylate latexes by the gelatination method was shown by direct experiments. There are 5 tables, 7 sets of figures and 9 references: 8 Soviet and 1 English.

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AO51/A029

AUTHORS: Nusinov, M.D.; Ivanov, B.I.; Mazina, G.R.; Chernaya, V.V.; Pozin, A.A.

TITLE: The Application of Electric Contact Transmitters for Measuring Large Deformations of Latex Films

PERIODICAL: Kauchuk i Rezina, 1960, No. 8, pp. 35 - 37

TEXT: Latex balloons widely used in atmosphere probing frequently undergo premature deformations when being elevated to a given height, probably due to an uneven distribution of the deformations at different areas of their surfaces. The investigation of the deformations in the different areas of the latex balloon was undertaken, adopting experimental conditions close to those encountered in the performance of the balloons, i.e., low temperatures and electrical discharges. The authors overcame the usual difficulties of measuring deformations of large magnitudes, especially under the given conditions of low temperature and of curved object, by using transmitters of the electric contact type in a thermobarochamber. Measurements were made at different parts of the surface of the balloon (in the equatorial and meridional directions). The rheochord transmitter could not be used in view of the changing temperature. The transmitter showings were recorded on Card 1/4 ✓

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of Latex Films

a photographic tape at a distance, using a magnetic-electrical oscillograph of the MPO-2 (MPO-2) type. Figure 1 is a diagram of the electric contact transmitter used by the authors, and Figure 2 is a circuit diagram of the transmitter's connection. The transmitter has the following design: Two supporting prisms (2) of 5x 5x 5 mm made of plexiglas are fastened onto the balloon surface (1), using compensation latex films (3). The No. 88 glue is used for fastening the prisms and the latex films to the balloon's surface. The prisms serve as contacts for connecting the outlets which join the transmitter to the electrical measuring circuit. The compensation films prevent the occurrence of local voltages concentrating in the balloon's film during expansion, due to its slight thickness. The thickness of the film was 0.10 - 0.15 mm at the beginning of the measurements and a few microns at the final point. The experiments were carried out only 24 hours after the transmitters were attached to the surface of the balloon to ensure satisfactory adhesion. Manganin was used as the material for the contact wire due to its low temperature coefficient. The distance between the supporting prisms, when fastened to the balloon's surface, was 25 mm. A description is given of the design

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of the current recorders, situated in the supporting prisms. As the balloon expands, the supporting prisms move on opposite directions and cause periodic connecting and disconnecting of the circuit in the transmitter and a corresponding jump of the current in the electrical circuit. A visual check is made by counting the number of tubes which light up connected in series with the oscillograph's vibrator. Figure 3 is a typical oscillogram of the transmitter's showings. The accuracy of the counting would depend on the accuracy of division of the contact wire into various sections. Figure 3 shows that the rate of deformation is variable at different periods of time. This fact is taken into account when studying the kinetics of the film's deformation under conditions close to real ones. The authors conclude that their method is useful in measuring large deformations, such as 500 - 600%, of non-metal materials (rubber, latex films, plastics, etc.). It is especially useful in measuring at distances under conditions similar to actual performance. There are 3 figures and 5 references: 4 Soviet and 1 English.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy  
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A051/A029

AUTHORS: Abramova, Ye.N., Chernaya, V.V., Gorelik, Ye.A.  
TITLE: Thermo-Sensitization of Natural and Synthetic Latexes  
PERIODICAL: Kauchuk i Rezina, 1960, No. 10, pp.12-18

TEXT: The authors discuss the production of articles from latexes by the gelatinization of thermo-sensitized mixtures. They prove that by the introduction of an excess of ammonia no retarding of the complex-formation is accomplished when natural and synthetic latexes are used neither the retarding of the gelatinization at room temperature is attained. Further study was carried out on the possibility of lowering the activity of the complex by using stabilizers. The OC-20 (OS-20) product was investigated. It is formed as a result of the processing of octadecyl alcohol with ethylene oxide and is a typical example of a non-ionic stabilizer, i.e., a product which does not disassociate in an aqueous solution and thus holds back the disassociation of other ions. The investigations showed that by introducing an excess of ammonia or by using the non-ionic stabilizer OS-20 no retarding effect of the zinc-ammonium complex, i.e., of the gelatinizing agent is reached. (Figs. 1,2). The activity of the zinc-ammonium complex when introducing ammonium salts increases,

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Thermo-Sensitization of Natural and Synthetic Latexes

depending on the presence of anions, in the following order:  $\text{Cl}^- < \text{SO}_4^{2-} < \text{NO}_3^-$ . The investigations further revealed that the zinc-ammonium complex, as a result of its activity, does not help to produce a stable thermosensitized mixture and cannot be used as a thermosensitizing agent. The JI-4 (L-4) latex containing the zinc-ammonium complex was stable only for 24 hours. The property of polyvinylmethyl ether to decrease its solubility with an increase in temperature renders it useful in the production of thermosensitized latex mixtures. ПВМЭ (PVME) was synthesized at the Institut organicheskoy khimii AN SSSR (Institute of Organic Chemistry at the AS USSR) by Professor M.F. Shostakovskiy and was investigated in addition to the foreign product Lutonal M-40. A 20% aqueous solution of OS-20 was used as the stabilizer. Experiments were carried out with natural and synthetic latexes. It was noted that when producing mixtures with PVME a strict procedure must be maintained for the natural latex qualitez viz. 1) introduction of the dispersion sulfur and accelerators, 2) introduction of the stabilizer, 3) lowering the pH of the mixture. For the synthetic latex L-4: 1) introduction of the stabilizer, 2) lowering the pH of the mixture, 3) introduction of the ether, 4) introduction of zinc oxide. The introduction of ether into the L-4 latex increases the viscosity from 17-18 to 80-100 cpoise. The viscosity remains constant with further storage of the mixtures for a period of

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one month. The mixtures containing PVME have good technological properties, which allows for the production of easily-processed raw gels on hot molds. Films of various thickness were obtained depending on the length of time the mold was kept in the mixture. The deposition kinetics of L-4 latex and qualitex-based mixtures varies. In investigating the nitroparaffins as thermosensitizing agents for natural and synthetic latexes, it was shown that the latter, as well as PVME, render the latex temperature-sensitive only in the presence of zinc oxide or other metal oxides and hydroxides, in addition to which a small amount of non-ionic stabilizer must be added. In studying nitrobutanol, nitromethane, nitroethane, 2-ethyl-2-nitropropanediol, 1, 3- and 2-methyl-2-nitropropanol, it was established that the nitroparaffins cause gelatinization in the L-4 latex at room temperature even in the presence of an excess of stabilizer. Thus, the nitroparaffins are recommended as gelatinizing agents when producing articles from the L-4 latex at low temperatures. As to the qualitex latex, the best results were obtained when using 2-ethyl-2-nitropropanediol and small quantities of zinc oxide. The pH has little effect on the properties of the mixtures containing nitroparaffins. The sodium and zinc salts of mercaptobenzoimidazol had no thermosensitizing effect on L-4 and L-7. In the case of natural latexes, qualitex and re-vultex stable thermo-sensitive mixtures were obtained which produced a stable

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